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L1: Entry 1 of 1

File: USPT

Aug 13, 2002

US-PAT-NO: 6434512

DOCUMENT-IDENTIFIER: US 6434512 B1

TITLE: Modular data collection and analysis system

DATE-ISSUED: August 13, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Discenzo; Frederick M.	Brecksville	OH		

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
Reliance Electric Technologies, LLC	Mayfield Heights	OH				02

APPL-NO: 09/410253 [PALM]

DATE FILED: September 30, 1999

## PARENT-CASE:

CROSS REFERENCE TO A RELATED APPLICATION This application is a continuation-in-part of U.S. patent application Ser. No. 09/118,287, filed Jul. 17, 1998, pending; U.S. patent application Ser. No. 09/300,645, filed Apr. 27, 1999, pending, which is a continuation-in-part of U.S. patent application Ser. No. 09/054,117, filed Apr. 2, 1998, pending; U.S. patent application Ser. No. 09/257,680, filed Feb. 25, 1999, pending, which is also a continuation-in-part of U.S. patent application Ser. No. 09/054,117, filed Apr. 2, 1998, pending; and U.S. patent application Ser. No. 09/257,785, filed Feb. 22, 1999.

INT-CL-ISSUED: [07] G06 F 11/26

US-CL-ISSUED: 702/184; 714/798

US-CL-CURRENT: 702/184; 714/798

FIELD-OF-CLASSIFICATION-SEARCH: 702/183, 702/184, 702/185, 702/187, 702/188, 702/182, 714/100, 714/1, 714/25, 714/31, 714/37, 714/47, 714/48, 714/798, 700/3, 700/9, 700/19-21, 700/108, 700/109, 700/204, 700/258, 701/2, 701/24, 701/33, 701/29, 701/30

See application file for complete search history.

## PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/> <u>5337013</u>	August 1994	Langer et al.	324/537
<input type="checkbox"/> <u>5400018</u>	March 1995	Scholl et al.	340/825.54
<input type="checkbox"/> <u>5481906</u>	January 1996	Nagayoshi et al.	73/116
<input type="checkbox"/> <u>5566091</u>	October 1996	Schricker et al.	702/34
<input type="checkbox"/> <u>5592386</u>	January 1997	Gaultier	701/99
<input type="checkbox"/> <u>5648898</u>	July 1997	Moore-McKee et al.	700/86
<input type="checkbox"/> <u>5661666</u>	August 1997	Pawlak	702/182
<input type="checkbox"/> <u>5754965</u>	May 1998	Hagenbuch	701/35
<input type="checkbox"/> <u>5925817</u>	July 1999	Kidokoro et al.	73/40
<input type="checkbox"/> <u>5929609</u>	July 1999	Joy et al.	322/25
<input type="checkbox"/> <u>6006146</u>	December 1999	Usui et al.	701/29
<input type="checkbox"/> <u>6128560</u>	October 2000	Ishii	701/29
<input type="checkbox"/> <u>6144903</u>	October 2000	Tousignant	701/29
<input type="checkbox"/> <u>6157894</u>	December 2000	Hell et al.	702/54
<input type="checkbox"/> <u>6208948</u>	March 2001	Klinger et al.	702/183
<input type="checkbox"/> <u>6230089</u>	May 2001	Lonn et al.	701/48
<input type="checkbox"/> <u>6297742</u>	October 2001	Canada et al.	340/635
<input type="checkbox"/> <u>6301514</u>	October 2001	Canada et al.	700/108

ART-UNIT: 2853

PRIMARY-EXAMINER: Hoff; Marc S.

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ATTY-AGENT-FIRM: Amin; Himanshu S. Walbrun; William R. Gerasimow; Alexander M.

ABSTRACT:

A diagnostics/prognostics system and related method for collecting and processing data relating to a plurality of subsystems of a dynamic system includes a plurality of sensors, each sensor gathering data and generating a data signal indicative of the health of a corresponding one of the subsystems. In addition, the diagnostics/prognostics system includes a plurality of subsystem modules coupled to corresponding ones of the sensors for generating a subsystem health signal in response to corresponding ones of the data signals. Further, a master diagnostics module is coupled to the subsystems to generate an overall system health signal in response to the subsystem health signals. Preferably, the master diagnostics module includes a memory having an embedded model to facilitate generating the overall system health signal and a related trend analysis. Preferably, a controller is used to generate a control signal in response to at least one of a group consisting of the subsystem health signals and the vehicle health signal, the control signal causing an operation parameter of at least one of the subsystems to change. The

diagnostics/prognostics system is especially well suited for vehicles, but can also be applied to other dynamic systems.

44 Claims, 30 Drawing figures

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